WASHINGTON DEPARTMENT OF ECOLOGY

ENVIRONMENTAL ASSESSMENT PROGRAM

FRESHWATER MONITORING UNIT

STREAM DISCHARGE TECHNICAL NOTES

STATION ID: 30C070

STATION NAME: Little Klickitat River near Wahkiacus

WATER YEAR: 2012

AUTHOR: Don Watt

Introduction

Watershed Description

The Little Klickitat River flows in south central Washington from the Simcoe Mountains and Horse Heaven Hills west across the Munson Prairie and through the Little Klickitat canyon to its confluence with the Klickitat River. The watershed drains approximately 280 square miles and includes range, agricultural, and forest lands. The river has been designated as Class A and is used primarily for irrigation, stock watering, and aquatic life habitat. Elevation ranges from about 590 ft at the gage up to 5820 ft along ridges at the northeast basin boundary. About 14% of the basin is covered by forest canopy. Annual precipitation averages 24.5 inches per year.

Gage Location

The gage is 15 miles west of Goldendale on the south side of State Highway 142. The gage is on the right bank 400 feet upstream from the Hwy 142 Bridge and 1/4 mile upstream from the confluence with the Klickitat River. The Primary Gage Index is a sloping staff gage on the right bank near the gage house and slant pipe.

Table 1.

Drainage Area (square miles)	280
Latitude (degrees, minutes, seconds)	45, 50, 32
Longitude (degrees, minutes, seconds)	121, 03, 29

Discharge

Table 2. Discharge Statistics.

Mean Annual Discharge (cfs)	156
Median Annual Discharge (cfs)	78
Maximum Daily Mean Discharge (cfs)	1650
Minimum Daily Mean Discharge (cfs)	18
Maximum Instantaneous Discharge (cfs)	2070
Minimum Instantaneous Discharge (cfs)	17
Discharge Equaled or Exceeded 10 % of Recorded Time (cfs)	365
Discharge Equaled or Exceeded 90 % of Recorded Time (cfs)	26
Number of Days Discharge is Greater Than Range of Ratings	0
Number of Days Discharge is Less Than Range of Ratings	0

Note: Statistics displayed in Table 2 may not include values in which the predicted discharge exceeds the range of ratings.

Narrative

Error Analysis

Table 3. Error Analysis Summary.

Logger Drift Error (% of discharge)	19%
Weighted Rating Error (% of discharge)	12%
Total Potential Error (% of discharge)	31%

Rating Table(s)

Table 4. Rating Table Summary

Rating Table No.	405	307	406
Period of Ratings	10/1 to 11/23/2011	10/10 to 7/28/2012	5/7 to 9/30/2012
Range of Ratings (cfs)	12 to 2110 cfs	1 to 2110 cfs	12 to 2110 cfs
No. of Defining Measurements	32	36	32
Rating Error (%)	11%	12%	11%

Rating Table No.			
Period of Ratings			
Range of Ratings (cfs)			
No. of Defining Measurements			
Rating Error (%)			

Rating Table No.			
Period of Ratings			
Range of Ratings (cfs)			
No. of Defining Measurements			
Rating Error (%)			

Narrative

Stage Record

Table 5. Stage Record Summary

Minimum Recorded Stage (feet)	3.25
Maximum Recorded Stage (feet)	8.73
Range of Recorded Stage (feet)	5.48
Number of Un-Reported Days	0
Number of Days Qualified as Estimates	86
Number of Days Qualified as Unreliable Estimates	0

Narrative

There were 69 days qualified as estimated data due to the logger drift assessment. Of those days 42 had a potential discharge error greater than 50%. For another 16 days high flow discharge was estimated using the slope-conveyance model noted below. One other day had several hours of data estimated by linear interpolation during an outage due to station maintenance.

Modeled Discharge

Table 6. Model Summary

Model Type (Slope conveyance, other, none)	Slope conveyance
Range of Modeled Stage (feet)	6.00 to 8.80 ft
Range of Modeled Discharge (cfs)	693 to 2110 cfs
Valid Period for Model	10/1/06 to 9/30/2012
Model Confidence	4%

Surveys

Table 7. Survey Type and Date (station, cross section, longitudinal)

Type	Date

Activities Completed
